Field of the Invention

Kvick Skate is a new type of under-skate for use on all types of skates, with and without gas/air pillows. This means compressed air in whole or parts of the air parts in the front, middle or rear end on the skate.

Summary of the Invention

Without the gas/air pillows the under-skate is constructed with elastic parts in the front, rear, and in whole/parts of the middle part, the under-skate will then spring and flatten out, tilt and twists, also upwards. With increased pressure/load (e.g. with all weight on one leg, high velocity in curves and more) will give considerable friction advantages.

The under-skate can also be stiffened higher/lower (weight of skater) by sliding adapted parts in grooves (see drawing).

By increased pressure/load means when the skater is putting all force on one leg, the under-skate will feather and flatten out in the middle part and give longer sliding surface. When the skater makes turns/curves (centrifugal effect) the velocity and long sliding surface is maintained without restraining the curve characteristic by feathering the front and rear part of the under-skate upwards dependent of ~~turing~~ turning radius.

By ~~distribuating~~ distributing the weight on to legs will bring the under-skate back to shorter sliding surface/radius. The part were the ~~srips~~ strips/steel (that can be separated from the under-skate, clicked eventually screwed on) is fattened is movable upwards, sideways and twisting.

2. Area of Application

Under-skate for use on all types of skates

3. Technique That The Invention Is Based On

Cited publications raised under the investigation shows no

friction advantages to any great extent, due to fixed/partly steel solution that anyhow must be delivered/grinded with gliding surface in the middle part and early rounding upwards in both ends of the skate.

As an alternative a radius grind can be used, this means that it is grinded a fixed radius under the whole skate steel. Both alternatives is to make the skate easy maneuverable in turns, but ~~looses~~ loses considerably speed due to short gliding surface. (Increased pressure on short surface)

4. What is Particularly Gained by the State of this Technique

The under-skates frame construction and description (slanting quadrangle, round profiles/air parts, "feathering" construction/mass) distributes the weight on a longer stroke due to feathering when used on hard foundation (ice).

When the under-skate feathers/~~flatens~~ flattens out and gives a longer sliding surface by increased pressure (all weight on one leg) you will obtain friction benefits, increased speed due to more contact with the foundation (is) without restraining the turning ~~abilieties~~ abilities.

The skate will follow the skater's movements, also in turn irrespective of radius due to the movable middle, front, and rear part.

The under-skate at sudden stop by cross placing the skate will always give after in the rear and front end, this happens due to more flexibility in the ends than the middle part of the skate were it has a moment e.g. 1.5 mm, from the toe joint foothold that has 100% moment (due to the kick-off). This means that the skate is not falling in more than a given amount of millimeter in the middle part,± Example 1 mm.

5. Which Means Necessary to Achieve the Above

Under-skate is build up with flex/movable plastic parts up

down, sideways and twisting.

6. Industrial Exploitation

Under-skate can be used to all types of skates.

7. ~~Closer Explanation on the Invention Preferably Illustrated with Sign's~~ Brief Description of the Drawings

~~The invention is described with drawings and descriptions.~~

Fig. 1 is a side view of a first embodiment of a skate according to the invention;

Figs. 2a and 2b are, respectively, an enlarged sectional view and an enlarged side view of the skate of Fig. 1;

Figs. 3a and 3b are, respectively, a front view and a side view of a second embodiment of a skate according to the invention;

Fig. 4 is a side view of a third embodiment of a skate according to the invention;

Figs. 5a, 5b, and 5c are, respectively, a front view, a front view, and a side view of a fourth embodiment of a skate according to the invention;

Fig. 6 is a top view of a skate according to a fifth embodiment of the invention;

Figs. 7a and 7b are, respectively, a front view and a rear view of the skate of Fig. 6; and

Fig. 8 is a side view of a skate according to a sixth embodiment of the invention.

Description of the Preferred Embodiments

Screw 1 shows that if it is screwed out against the ends of the skate in both ends it becomes stiffer. 4a and 4b is only showing the extra material thickness that is fixed in the groove profile 3a and 3b.

Feathering under-skate for ice skates.

B. All movable under-skate for skates in plastic/composite material and more, with flexibility up-downwards together with

twisting/tilting shown in Figure 1 shows a blade 1 attached to a frame structure 2 or formed as a single structure 17, as shown in Figs. 3a and 3b. Element 3 shown in Fig. 1 and element 16 shown in Fig. 3 is a skate steel strip that glides on the ice.

The blade and frame structure may be push/click mounted with adapted profiles, as shown in Figs. 2a and 2b that will lock/clamp the parts together.

For increased speed/friction advantages, flexible steel strips 3 shown in Fig. 2b are clicked in place in adapted profile, or used as in Figs. 3a and 3b for all types of skates.

When skating, the under-skate flattens or flexes, as shown in Figs. 3a and 3b, due to obliquely square-shaped profiles when all pressure/force is on one leg.

In Figs. 3a and 3b, the under-skate will flex upwards or downwards by the means of gas/air parts, or alternatively by means of spring profiles 5a and 5b, by increased pressure from the skater (all weight on one leg), also advantageous twisting 2a, 2b and 2c for more and longer sliding surface in the longitudinal direction and in turns without restraining the turning abilities, and gives friction advantages and increased speed.

The skater can also vary the turning technique by transmitting all his weight to the front or rear on the skate. The skate will then decrease the turning radius due to air/gas parts (eventual feathering all, feathering/spring profiles 10a and 10b that will contract, as shown in Fig. 4, as shown at 7a and 7b.

With equal pressure on both legs the skate will feather back to normal turning radius, as shown in Fig. 4, element 2; alternatively, sliding surface 3 is used, for example in hockey skates (app. 4-6 cm).

If the skater desires, the skate can have 100% moment in

Fig. 4 at the kick-off (toe joint).

Adjustment of the adapted brick 5 up or down stiffens the frame structure according to the preference of the skater. Element 4 is the toe part of the skate frame.

Movability/flex designed in plastic/composite and the like makes it possible to turn easily, hereunder to cross-place the skate with and without speed, also with large contact surface on the ice.

As known, longer sliding surface gives considerably higher speed due to weight distribution over larger area due to friction advantages.

When the skater cuts over in a turn at high speed, the skate's rear and front parts will flex/twist, as shown in Fig. 4, elements 2a, 2b and 2c, to normal turning radius shown in Fig. 3, together with the body without problems. Even in the sharpest turns the skater does not lose speed due to large steel surface on the ice that turns together with the body's movement.

For adaptation to speed skating (longer skate) the construction can alternatively be stretched out, as shown in Fig. 4, as shown at 6a and 6b.

Gas/air parts can be replaced with bendable plastic and the like (Fig. 3) and the like, elements 5a and 5b.

The plastic and the like can also in these two parts be cylindrically shaped, flexing together, as shown in Fig. 3, element 6, to make the construction stronger and save components if necessary.

Fig. 6 shows the under-skate without the gas/air parts; alternatively, arced plastic profiles are used that are feathering/springs in the front, rear and from the bottom side. The under-skate of Fig. 6 is mounted on the rest of the under-skate.

An adjustable alternative is the sliding brick of Figs. 5a

and 5b. that is adapted in profile, elements 4a and 4b, that has longitudinal threads 3a and 3b, and is screwed back and forth with the screw 2a and 2b, thereby is screwed from both ends and makes the skate stiffer as desired.

Alternatively the distance in the front and rear can be different, and in that way the skate will press the forward and the rear more together. Alternatively, the distance can be increased in Figs. 5a and 5b, and increases or decreases the radius on the skate as desired.

To adjust the flexibility in Figs. 5a, 5b and 6, screw 12 can be screwed back and forth in the adapted profile 13a and 13b. A screwdriver is placed in the adapted hole with threads in the front or rear. 14a and 14b show only the extra material thickness that is fixed in the rail section 13a and 13b.

Fig. 6 shows the under-skate without gas/air parts, with arced/movable parts in the open parts in front and rear, 2a and 2b.

The strips holder in Fig. 6 is shown mounted without strips.